Universities Space Research Association
And the
NASA Institute for Advanced Concepts

Technical Symposium:
"Grand Visions of Aerospace – The Next Thirty Years"

March 26, 1999 8:30AM to 12:30PM
NASA HQ Auditorium

The Universities Space Research Association and the USRA NASA Institute for Advanced Concepts are sponsoring a technical symposium which will explore "Grand Visions for Aerospace – The Next Thirty Years". The invited speakers will examine the challenges and possibilities for revolutionary advances that may impact the direction of aeronautical and space development over the next 30 years. These presentations are aimed at stretching our imagination decades into the future.

SCHEDULE:

8:00 Registration

8:30 - 9:00AM

Welcome and Opening Remarks (Dr. Robert A. Cassanova and Dr. Paul Coleman)

NASA Vision for the Next 30 Years - Mr. Dan Goldin (not yet confirmed)

Introduction of Speakers - Dr. Robert A. Cassanova

9:00 to 9:30AM

Dr. Wes Huntress - Space Sciences

9:30 to 10:00AM

Dr. Mark Abbott - Remote Sensing and Earth Science in 2030: Trends in Technology and Science and the Sources of Innovation

10:00 to 10:30AM

Dr. Larry Young - Human Exploration and Artificial Gravity

10:30 to 10:45AM

Break

10:45 to 11:15AM

Dr. George Donohue - Aeronautics/Aviation Capacity

11:15 to 11:45AM

Dr. Jerry Grey - Space Propulsion

11:45AM to 12:15PM

Dr. Peter Denning - The Next Thirty Years of Computing

Dr. Wesley T. Huntress, Jr.

Dr. Huntress is Director of the Geophysical Laboratory of the Carnegie Institute of Washington. He is also currently serving as President of the American Astronautical Society. Dr. Huntress came to Carnegie after ten years at NASA Headquarters in Washington, DC. From 1990 to 1992 he was Director of the Solar System Exploration Division and from 1993 to 1998 he served as Associate Administrator for Space Science where he was a key architect of the "smaller, faster, cheaper" Space Science mission model and of NASA's new Origins program. Dr. Huntress came to NASA after a successful 20-year career as a scientist at the Jet Propulsion Laboratory (JPL) in Pasadena, California. Trained in Chemical Physics at Brown University (BS '64) and Stanford University (Ph.D. '68), his scientific career at JPL involved studies in astrochemistry. He participated in several missions, as a co-investigator on the Giotto Halley's Comet mission, coma scientist for the Comet Rendezvous Asteroid Flyby mission, as study scientist for the Cassini mission, and a number of line and program management assignments. At JPL, Dr. Huntress and his research group gained international recognition for their pioneering studies of chemical evolution in interstellar clouds, comets, and planetary atmospheres. Dr. Huntress spent his last year at JPL in 1987-1988 as a Visiting Professor of Cosmochemistry in the Department of Planetary Science and Geophysics at CalTech.

Dr. Mark R. Abbott

Dr. Abbott is a Professor in the College of Oceanic and Atmospheric Sciences at Oregon State University. He received his B.S. in Conservation of Natural Resources from the University of California, Berkeley, in 1974 and his Ph.D. in Ecology from the University of California, Davis, in 1978. He has been at OSU since 1988. Dr. Abbott's research focuses on the interaction of biological and physical processes in the upper ocean and relies on both remote sensing and field observations. He is currently a member of the MODIS and SeaWiFS Science Teams, and he chairs the Committee on Earth Studies for the National Academy of Sciences. He also heads a NASA Earth Observing System interdisciplinary science team. His field research includes the first deployment of an array of bio-optical moorings in the Southern Ocean as part of the U.S. Joint Global Ocean Flux Study.

Dr. Laurence R. Young

Dr. Young Apollo Program Professor of Astronautics at the Massachusetts Institute of Technology (MIT), is Director of the National Space Biomedical Research Institute. He co-founded the MIT Man-Vehicle laboratory in 1962, and has been recognized for contributions in this field by the Paul Hansen Award of the Aerospace Human Factors Association, the Dryden Lectureship in Research, the Jeffries Medical Research Award of the AIAA, the Franklin Taylor Award of the IEEE, and most recently the Koetser Foundation Prize for his contributions to the aerospace medical field. A member of the National Academy of Engineering, the Institute of Medicine and the International Academy of Astronautics, Dr. Young is the author of over 250 journal articles, largely in the areas of space physiology and human factors, including the review chapters in Fundamentals of Aerospace Medicine and the Handbook of Physiology. He has served on the NRC Committee on Human Factors and many NRC and NASA space and aviation boards and panels, most recently those on the NRC's Space Station, on Human Factors in Air Traffic Control panel, and on NASA's Life Science Advisory Subcommittee. He has been P.I. on five Spacelab experiments and was the Alternate Payload Specialist for the Spacelab Life Science-2 mission. His involvement with expert systems dates to 1988, when he began research at Stanford and at NASA Ames Research Center on the PI-in-a-Box Project, which has flown on three space missions.

Dr. George L. Donohue

Dr. George L. Donohue is currently the FAA visiting Professor for Air Transportation Technology and Policy at George Mason University. Dr. Donohue became the Federal Aviation Administration's Associate Administrator for Research and Acquisitions in August 1994. In this capacity, Donohue was responsible for a 2,000 member organization charged with designing and upgrading the infrastructure of the National Airspace System (NAS) to keep pace with new technology and increasing customer demands. In early 1995, he initiated the development of the NAS Architecture, which has become the world's benchmark for international technology investment. In April of 1998, he was the Head of the U.S. Delegation to the International Civil Aviation Organization (ICAO) meeting in Rio de Janeiro, Brazil on modernization of the world's Air Transportation Infrastructure. Before joining the FAA, Donohue served as vice president of the RAND Corporation, in Santa Monica, California, since 1989. Concurrently, from 1988-1989, Donohue served as director, Aerospace and Strategic Technology Office, for the Defense Advanced Research Projects Agency (DARPA), in Washington, D.C. In that position, he provided fiscal and management oversight of a wide range of programs, including the low cost GPS/fiber-optic-gyro navigation system, the X-31 experimental fighter aircraft and the Pegasus space-launched vehicle program. From 1979 to 1984, he was vice president, Dynamics Technology, Inc., of Torrance, California, a small, high-technology research and venture capital firm. He is a member of numerous professional organizations, including being a Fellow of the American Institute of Aeronautics and Astronautics. From 1995 - 1997 he served as a member of the Board of Directors for RTCA. In 1972, Dr. Donohue earned his Ph.D., in Mechanical and Aerospace Engineering, at Oklahoma State University, where in 1968 he also received his Masters degree in the same field and is a 1967 graduate of the University of Houston with a B.S. in Mechanical Engineering.

Dr. Jerry Grey

Dr. Grey received his Bachelor's degree in Mechanical Engineering and his Master's in Engineering Physics from Cornell University; his PhD in Aeronautics and Mathematics from the California Institute of Technology. He was Instructor in thermodynamics at Cornell, engine development engineer at Fairchild, Senior Engineer at Marquardt, and hypersonic aerodynamicist at the GALCIT 5-inch hypersonic wind tunnel. He was a professor in Princeton University's Department of Aerospace and Mechanical Sciences for 17 years, where he taught courses in fluid dynamics, jet and rocket propulsion, and nuclear powerplants and served as Director of the Nuclear Propulsion Research Laboratory. He was President of the Greyrad Corporation from 1959 to 1971, Adjunct Professor of Environmental Science at Long Island University from 1976 to 1982, and Publisher of Aerospace America from 1982 to 1987. He is now Director, Aerospace and Science Policy for the American Institute of Aeronautics and Astronautics, consultant to a number of government and commercial organizations, and Visiting Professor of Mechanical and Aerospace Engineering at Princeton, where he teaches "Space Science and Technology" to students in the humanities. Dr. Grey is the author of twenty books and over 300 technical papers in the fields of space technology, space transportation, fluid dynamics, aerospace policy, solar and nuclear energy, spacecraft and aircraft propulsion, power generation and conversion, plasma diagnostics, instrumentation, and the applications of technology. He has served as consultant to the U.S. Congress (as Chairman of the Office of Technology Assessment's Solar Advisory Panel and several space advisory panels), the United Nations (as Deputy Secretary-General of the Second UN Conference on the Exploration and Peaceful Uses of Outer Space in 1982), NASA (as a member of the NASA Advisory Council), the Department of Transportation (as Vice-Chairman of the Commercial Space Transportation Advisory Committee), the Department of Energy (as a member of the Secretary of Energy Advisory Board), and the U.S. Air Force, as well as over thirty industrial organizations and laboratories.

Dr. Peter J. Denning

Dr. Denning is Professor of Computer Science and University Coordinator for Process Reengineering at George Mason University. He served previously as vice provost for continuing professional education, associate dean for computing, and chair of the Computer Science Department in the School of Information Technology and Engineering. He is founding director emeritus of the Hyperlearning Center, known formerly as the Center for the New Engineer, founded in 1993. He was formerly the founding director of the Research Institute for Advanced Computer Science at the NASA Ames Research Center, was co-founder of CSNET, and was head of the computer science department at Purdue. He received a PhD from MIT and BEE from Manhattan College. He was president of the Association for Computing Machinery 1980-82, chair of the ACM publications board 1992-98 where he led the development of the ACM digital library, and is now chair of the ACM Education Board. He has published four books and 260 articles on computers, networks, and their operating systems, and is working on two more books. He holds two honorary degrees, three professional society fellowships, two best-paper awards, two distinguished service awards, the ACM Outstanding Contribution Award, the ACM SIGCSE Outstanding CS Educator Award, and the prestigious ACM Karl Karlstrom Outstanding Educator Award.